

# NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

## FACT SHEET

(Pursuant to NAC 445A.874)

Permittee Name: **Lyon County Utilities Department** Type of Project: **Aquifer Storage & Recovery**  
Project Name: **Dayton Valley ASR Program** Address: **34 Lakes Blvd., Suite 103**  
Permit Action: **Draft UIC Temporary Permit** **Dayton, Nevada 89403**  
Permit Number: **UNEV2006200** Injection Wells (#): **Five (5)**

### A. Description of Injection well

**Location:** One (1) injection well, located in SE ¼ SE ¼ Section 24 T.16N., R21E., MDB&M Lyon County, Nevada. The well is named Eldorado ASR-1 or EASR-1. Groundwater is 165 feet bgs. An additional four (4) wells located in the any of the following: T.16N.,R21E., Sections 1,12-14,24,&25; T.16N.,R22E., Sections 3-10,13,15-22,&28-31; or T.17N, R22E Sections 21,22,27-29 and 31-34, MDB&M Lyon County, Nevada.

Latitude 39°14'23"  
Longitude 119°33'50"

Well Construction:

Well Name/No.	Type of Construct.	Water Level	Total Depth	Screen Interval
EASR-1	28" borehole; 18" mild steel casing with 18" stainless steel Fulflo Louvered screen; well contains a 4" ASR injection tube inside of 18" casing		407'	185'-318', 333'-380'
EASR-1-MW-2	11" borehole, 4-in sched 80 PVC, cement seal to 336'	159.7'	351'	340'-350'

**Injectate Characteristics:** All injectate for the will be groundwater treated through Lyon County Utilities Department (LCUD) municipal water distribution system. The TDS of the injectate ranges from 280 – 440 mg/l and meets all drinking water standards for the constituents tested.

**Receiving Water Characteristics:** The quality of the receiving ground water aquifer meets all drinking water standards and has a TDS of 420 mg/l and pH of 7.48. Other values include arsenic < 0.005 mg/l, sulfate = 91 mg/l, Chloride = 18 mg/l, sodium = 59 mg/l, iron < 0.01 mg/l, barium = 0.036 mg/l, and nitrate = 0.69 mg/l.

### **Wellhead Protection Areas**

Dayton Well # 4 water well is approximately ½ mile to the NNW from the ASR well.

\_Y\_ Injection well/Facility within a 2-, 5-, or 10-year groundwater protection area  
\_Y\_ Injection well/Facility within 7000-foot buffer zone for any public water supply well

### B. Synopsis of Project

The project area is located in the Dayton Valley area (see map). The purpose of LCUD's Aquifer Storage and Recovery (ASR) program is to store a portion of the water that is extracted from induction (production) wells. Ground water source comes from production wells in the area and are permitted by the Nevada State Engineer and the NDEP Bureau of Safe Drinking Water. Water from the production wells (Dayton #3 and Dayton #4) was treated with chlorine and pumped into the distribution system up to the ASR well EASR-1 during the pilot test.

The Permittee conducted a pilot test for approximately 21 days to test the injection performance and determine the viability of the project. The average injection rate was proposed to be about 150-250 gallons per minute (gpm) into EASR-1.

There was also a tracer test conducted during the pilot test. Rhodamine WT (a surface and ground water tracer) was used. On the third or fourth day of the test, 600 mL of 20% liquid solution was released into well EASR-1 at the current inflow rate. NDEP and DWR requested an addition within minutes, instead of over an hour. Projected concentration was 3,500 ppb at the point of injection. NDEP calculated dilution is 170-250 ppb at 25 feet from wellbore. *Three concentrations have been established under the NSF Standard 60; 0.1 µg/L for drinking water, 10 µg/L for water entering a drinking water plant prior to treatment and distribution), and 100 µg/L for ground water not associated with drinking water production. (source: Federal Register Vol 63 No. 40 1998)*

The pilot test showed successful results; therefore, the pilot well EASR-1 is going to remain as a part of the Lyon County ASR Program with a potential of an additional four (4) ASR wells in the future. Each well will require individual review and approval prior to use. The Rolling "A" well will be pumped into the distribution system treated with chlorine and injected into EASR-1 for the future permanent aquifer storage and recovery program.

A summary of Lyon County Utilities Department's artificial recharge program is given below:

2005	Project proposal and initiation
2005	Injection applications to Nevada Division of Environmental Protection
Mid-2006	Change of plans to conduct pilot test – use temporary permit
Dec 2006	Draft Temp permit for pilot test
Jan 2006	Issue Temp permit for pilot test – was not used
Feb 2006	Change of plans to inject from Rolling A well for 2.5 months
Mar 2006	Change of plans not use Rolling A well water, only ground water for 21-day pilot test
May 2006	Issue 2 <sup>nd</sup> Temp permit for pilot project
Dec 2007	Major Modification / Permanent Application to NDEP
Feb 2008	Draft Permit for permanent permit

**C. Proposed Effluent Limitations and Special Conditions**

1. The injectate and affected groundwater shall be limited and monitored by the Permittee and reported to the Division pursuant to this permit as specified below:
  - a. The injectate shall meet drinking water standards for all constituents. The receiving ground water shall not be degraded with respect to the physical, biological and chemical conditions, including trihalomethanes;
  - b. The injection pressure shall not exceed that which is calculated to initiate new fractures

or propagate existing fractures in the zone of injection or the confining formation between the zone for injection and any aquifer system. Maximum injection pressure must be calculated by using the formulas as specified in NAC 445A.911 and shall be measured at the injection wellhead. (Wells are currently operated such that 3-5 lbs of pressure is exerted on the pump wellhead); and

- c. Injection may not adversely impact contaminated groundwater within the Truckee Meadows basin.
  - d. A laboratory certified by the State of Nevada must perform all analyses. Testing methods for constituents must be EPA or Division approved. **The UIC Program requires inorganic analyses of metals for “Total Recoverable Metals” in which samples are not filtered and are preserved with an acid in the field. Any exceptions to this policy must be requested and pre-approved by the UIC program prior to sampling. It must be clearly stated on all reports which analyses were used.**
  - e. The analytical method detection limits for all chemical constituents must be at least as low as primary or secondary drinking water standards when applicable.
  - f. The Division may decrease or increase the monitoring of any parameter for good cause.
  - g. This permit does not contain limits for cumulative volumes injected during the recharge season.
2. Samples taken in compliance with the monitoring requirements specified in this permit shall be taken at ports on the distribution system piping within the zones established by the permittee listed under permit Part I.A.1.
  3. The following parameters shall be monitored by the permittee and be reported as specified in permit Part I.A.7. The injection pressure and injection rate measurements shall be taken as close to the same time as possible.

**E. Rationale for Permit Requirements**

The permit conditions will help to ensure that the injectate does not adversely affect the existing water quality or hydrologic regime. Verification will be performed to ensure that injected fluid quality remains constant and meets drinking water standards. In particular, NDEP is concerned that recharge projects do not create chlorinated organics in the groundwater due to the chlorination treatment of injected water.

**E. Proposed Determination**

The Division has made the tentative determination to issue the permit.

**F. Procedures for Public Comment**

The Notice of the Division's intent to renew the permit authorizing the facility to discharge to the

ground water of the State of Nevada subject to the conditions contained within the permit, was sent to the Reno Gazette Journal and Nevada Appeal newspapers for publication no later than March 7, 2008. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing for a period of 30 days following the date of the public notice.

The comment period can be extended at the discretion of the Administrator. All written comments received during the comment period will be retained and considered in the final determination.

A public hearing on the proposed determination can be requested by the applicant, any affected state, any affected interstate agency, the regional administrator or any interested agency, person or group of persons.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings will be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Prepared by: Brian Martinezmoles

Date: February 2008

